DETAILED ACTION

Interview Summary

A telephone interview was conducted on 29 April 2008 with applicant's representative James Golladay. Applicant requested clarification of the final rejection dated 23 April 2008, questioning the validity of Shigemura anticipating the claimed invention under 35 U.S.C 102(e). Upon further review and careful consideration, the examiner hereby vacates the final rejection dated 23 April 2008 and herein resides a new non-final rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

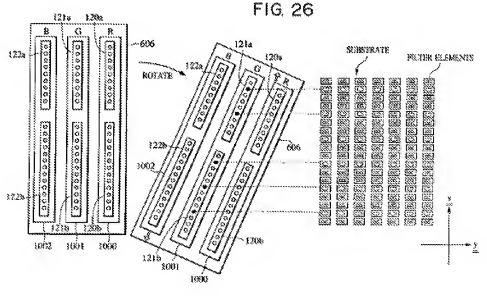
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 41-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigemura (US 6,667,795 B2).

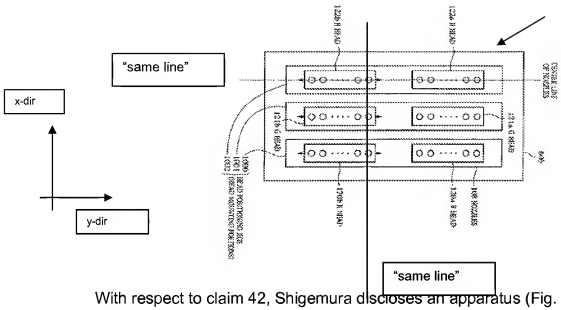
With respect to claim 41, Shigemura discloses an apparatus (Fig. 14) for manufacturing a color filter (Column 1, lines 15-24), comprising: a plurality of ejection heads (Fig. 26, elements 120a, 120b, 121a, 121b, 122a, 122b) which are arranged perpendicular to a head scan direction (Fig. 26, element x-dir) arranged on a print head (Fig. 26, element 606), each ejection head having a plurality of nozzles (Fig. 16, elements 108) for ejecting a filter material in droplets (Column 1, lines 26-33); the

plurality of nozzles (Fig. 16, elements 108) linearly arranged with a constant layout pitch of (D) (Fig. 23, Nozzle Pitch), the plurality of ejection heads are arranged on the print head to form at least one linear row of nozzles (Fig. 16, center line of nozzles, i.e. y direction) arranged perpendicular to the head scan direction (Fig. 26, element x-dir), wherein at least one of the plurality of ejection heads (Fig. 3A, elements 120, 121, 122) comprises a plurality of first nozzles (Fig. 16, elements 108) for ejecting a first type of filter material (Column 10, lines 30-36), a plurality of second nozzles (Fig. 16, elements 108) for ejecting a second type of filter material (Column 10, lines 30-36), and a plurality of third nozzles (Fig. 16, elements 108) for ejecting a third type of filter material (Column 10, lines 30-36), the plurality of first, second, and third nozzles arranged in a same line (Center line of nozzles below, i.e. after rotation).

FIG. 26



Head position after rotation in Fig. 26; Column 23, lines 21-33



With respect to claim 42, Shigemura discloses an apparatus (Fig. 14) for manufacturing an electroluminescence substrate (Column 1, lines 15-24), comprising: a plurality of ejection heads (Fig. 26, elements 120a, 120b, 121a, 121b, 122a, 122b) which are arranged perpendicular to a head scan direction (Fig. 26, element x-dir) arranged on a print head (Fig. 26, element 606) each ejection head having a plurality of nozzles (Fig. 16, elements 108) for ejecting a filter material in droplets (Column 1, lines 26-33), the plurality of nozzles (Fig. 16, elements 108) linearly arranged with a constant layout pitch of (D) (Fig. 23, Nozzle Pitch), the plurality of ejection heads are arranged on the print head to form at least one linear row of nozzles (Fig. 16, center line of nozzles, i.e. y direction) arranged perpendicular to the head scan direction (Fig. 26, element x-dir), wherein at least one of the plurality of ejection heads (Fig. 3A, elements 120, 121, 122) comprises a plurality of first nozzles (Fig. 16, elements 108) for ejecting a first type of filter material (Column 10, lines 30-36), a plurality of second nozzles (Fig. 16, elements 108) for ejecting a second type of filter material (Column 10, lines 30-36), and

a plurality of third nozzles (Fig. 16, elements 108) for ejecting a third type of filter material (Column 10, lines 30-36), the plurality of first, second, and third nozzles arranged in a same line (Fig. 16 above).

With respect to claim 43, Shigemura discloses a method for manufacturing a color filter (Columns 7-11), comprising: scanning a substrate by moving a table (Fig. 14, elements 603, 604) and a plurality of ejection heads (Fig. 26, elements 120a, 120b, 121a, 121b, 122a, 122b) which are arranged perpendicular to a head scan direction (Fig. 26, element x-dir) arranged on a print head (Fig. 26, element 606); and ejecting a plurality of types of filter material (Column 10, lines 48-52) in droplets (Column 1, lines 26-33) by the plurality of ejection heads each ejection head having a plurality of nozzles (Fig. 16, elements 108) arranged with a constant layout pitch of (D) (Fig. 23, Nozzle Pitch), the plurality of ejection heads being linearly arranged to form at least one linear row of nozzles (Fig. 16, center line of nozzles, i.e. y direction) which is arranged perpendicular to the head scan direction (Fig. 26, element x-dir), wherein at least one of the plurality of ejection heads (Fig. 3A, elements 120, 121, 122) comprises a plurality of first nozzles (Fig. 16, elements 108) for ejecting a first type of filter material (Column 10, lines 30-36), a plurality of second nozzles (Fig. 16, elements 108) for ejecting a second type of filter material (Column 10, lines 30-36), and a plurality of third nozzles (Fig. 16, elements 108) for ejecting a third type of filter material (Column 10, lines 30-36), the plurality of first, second, and third nozzles arranged in a same line (Center line of nozzles above, i.e. after rotation).

With respect to claim 44, Shigemura discloses a method for manufacturing an electroluminescence substrate (Columns 26-27), comprising: scanning a substrate by moving a table (Fig. 14, elements 603, 604) and a plurality of ejection heads (Fig. 26, elements 120a, 120b, 121a, 121b, 122a, 122b) which are arranged perpendicular to a head scan direction (Fig. 26, element x-dir) arranged on a print head (Fig. 26, element 606); and ejecting a plurality of types of functional layer forming material (Column 27, lines 30-34) in droplets (Column 1, lines 26-33) by a plurality of ejection heads, having a plurality of nozzles (Fig. 16, elements 108) arranged with a constant layout pitch of (D) (Fig. 23, Nozzle Pitch), the plurality of ejection heads being linearly arranged to form at least one linear row of nozzles (Fig. 16, center line of nozzles, i.e. y direction) which is arranged perpendicular to the head scan direction (Fig. 26, element x-dir), wherein at least one of the plurality of ejection heads (Fig. 3A, elements 120, 121, 122) comprises a plurality of first nozzles (Fig. 16, elements 108) for ejecting a first type of functional layer forming material (Column 10, lines 30-36), a plurality of second nozzles (Fig. 16, elements 108) for electing a second type of functional layer forming material (Column 10, lines 30-36), and a plurality of third nozzles (Fig. 16, elements 108) for electing a third type of functional layer forming material (Column 10, lines 30-36), the plurality of first, second, and third nozzles arranged in a same line (Center line of nozzles above, i.e. after rotation).

With respect to claim 45, Shigemura discloses the plurality of first, second and third nozzles (Fig. 16, elements 108) are arranged in one of the linear row of nozzles arranged perpendicular to the head scan direction (Fig. 26 above).

With respect to claim 46, Shigemura discloses the plurality of first, second and third nozzles (Fig. 16, elements 108) are arranged in one of the linear row of nozzles arranged perpendicular to the head scan direction (Fig. 26 above).

With respect to claim 47, Shigemura discloses the plurality of first, second and third nozzles (Fig. 16, elements 108) are arranged in one of the linear row of nozzles arranged perpendicular to the head scan direction (Fig. 26 above).

With respect to claim 48, Shigemura discloses the plurality of first, second and third nozzles (Fig. 16, elements 108) are arranged in one of the linear row of nozzles arranged perpendicular to the head scan direction (Fig. 26 above).

Although Shigemura does not disclose how much rotation the head θ motor performs on the head unit in Figure 26, the claim would have been obvious because a particular known technique (i.e. head θ motor rotating the head π/2 radians) was recognized as part of the ordinary capabilities of one skilled in the art.

Response to Arguments

Applicant's arguments filed 30 January 2008 have been fully considered but they are not persuasive.

First, the applicant argues "In support of the rejection of pending claims 41-48, the Office Action relies on a portion of Shigemura not relied upon in previous Office Actions. In particular, the Office Action relies on Fig. 26 of Shigemura, and the descriptions of this figure provided in Shigemura at col. 23, lines 21-48, which allegedly teaches a method of rotating head unit 606 shown in Figs. 16 and 26. The Office Action

asserts that the rotated head unit 606 is positioned in a manner that teaches all of the features recited claims 41-44. For the following reasons, this assertion is unreasonable."

However, the examiner used the head θ motor (Fig. 13, element 612) in the previous office actions. The head θ motor is used to rotate the head unit (Fig. 13, element 606). Thus, the assertion is reasonable because one of ordinary skill in the art would know how to rotate the head unit and the apparatus is capable of rotating the head (Column 23, lines 21-24), as illustrated above by the examiner.

Second, the applicant argues "The Shigemura device even in its rotated state, fails to teach a plurality of first nozzles, a plurality of second nozzles, and a plurality of third nozzles arranged in a same line as positively recited in claims 41-44."

However, given the broad recitation of the claim language and the design of Shigemura's apparatus (Fig. 13), specifically elements 603, 610, and 612, one of ordinary skill in the art would change the head scanning relative to the substrate movement (Fig. 26 above) using the head θ motor to rotate the head unit (Column 23, lines 21-24). Thus, the claims would have been obvious because a particular known technique (i.e. operation of X-Y and θ stages), were recognized as part of the ordinary capabilities of one skilled in the art.

Third, the applicant argues "The Office Action improperly ignores these requirements for anticipation by attempting to modify the embodiment of Fig. 16 of Shigemura with the embodiment of Fig. 26, picking and choosing allegedly corresponding features from differing embodiments to attempt to show anticipation by the reference. Clearly, the standard for anticipation is not met with this combination

because neither of the embodiments shows the combination of all of the features arranged as in the claim and modifying one embodiment with the other would improperly vitiate positively recited claim terms."

However, the examiner does not "pick and choose" between different embodiments. Figures 16 and 26 are the same head unit (element 606) in the same first embodiment (Fig. 13). Therefore, Shigemura meets the claimed limitations.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is (571)272-2810. The examiner can normally be reached on Monday-Friday 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. M./
Examiner, Art Unit 2853
4/29/2008

/STEPHEN D. MEIER/
Supervisory Patent Examiner, Art Unit 2853